

## METHOD AND APPARATUS FOR AUTOMATIC VOLUME CONTROL IN AN AUDIO SYSTEM

### Abstract of the Disclosure

5 An audio system (100) is provided with improved adaptive filter (206) to  
automatically adjust signal gain depending on the ambient noise level. The original  
music signal passes through a normalized adaptive filter (206), and is subtracted from  
the ambient room signal detected by a microphone (120), resulting in an error signal  
that is an estimate of the ambient noise. The error signal is used to update a set of  
adaptation coefficients so that the normalized adaptive filter more accurately  
10 simulates the room transfer function, resulting in an better estimate of the ambient  
noise. The audio system (100) is calibrated automatically upon initial use to  
determine adaptation coefficients and noise threshold level to prevent runaway gain.  
System parameters are adjusted using a controller (124) with a user-friendly  
15 interface (400).

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